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(54) Data terminal connected to two networks

(57) A computer terminal (PC) is connected to a computer network (CN), eg internet, and a wideband network (BN), eg for multimedia or video on demand. A user wanting wideband data first uses the computer network to retrieve an access file having a script enabling the terminal to access the wideband network in the same way as a set top box. This is intended to enable use of both networks while modifying the terminal as little as possible.

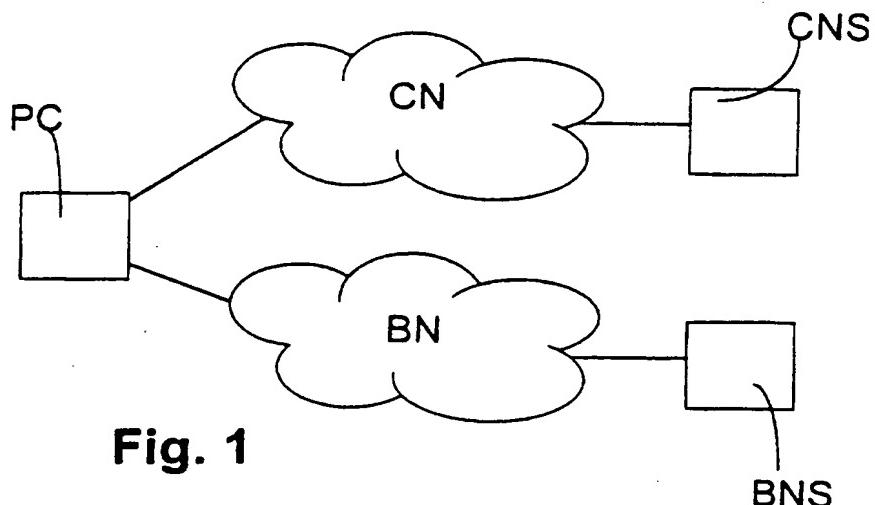


Fig. 1

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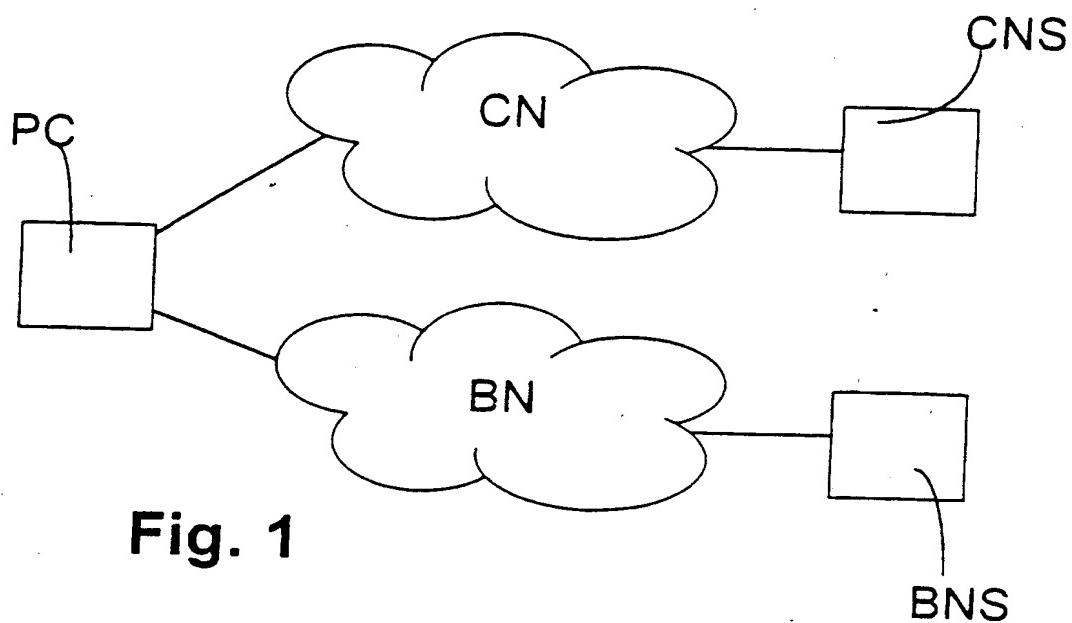


Fig. 1

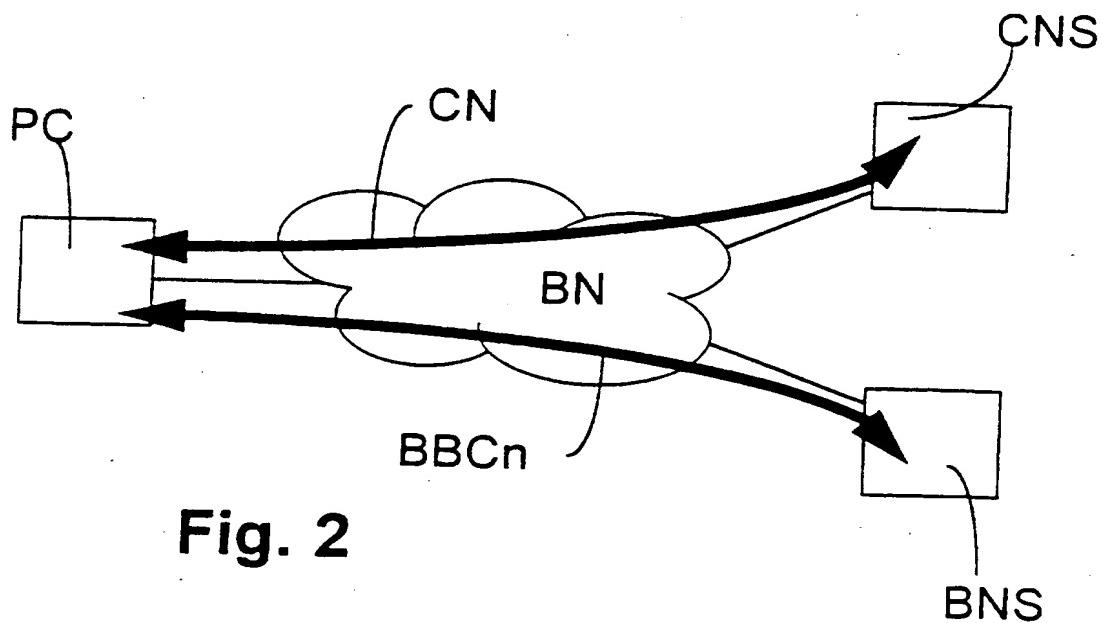


Fig. 2

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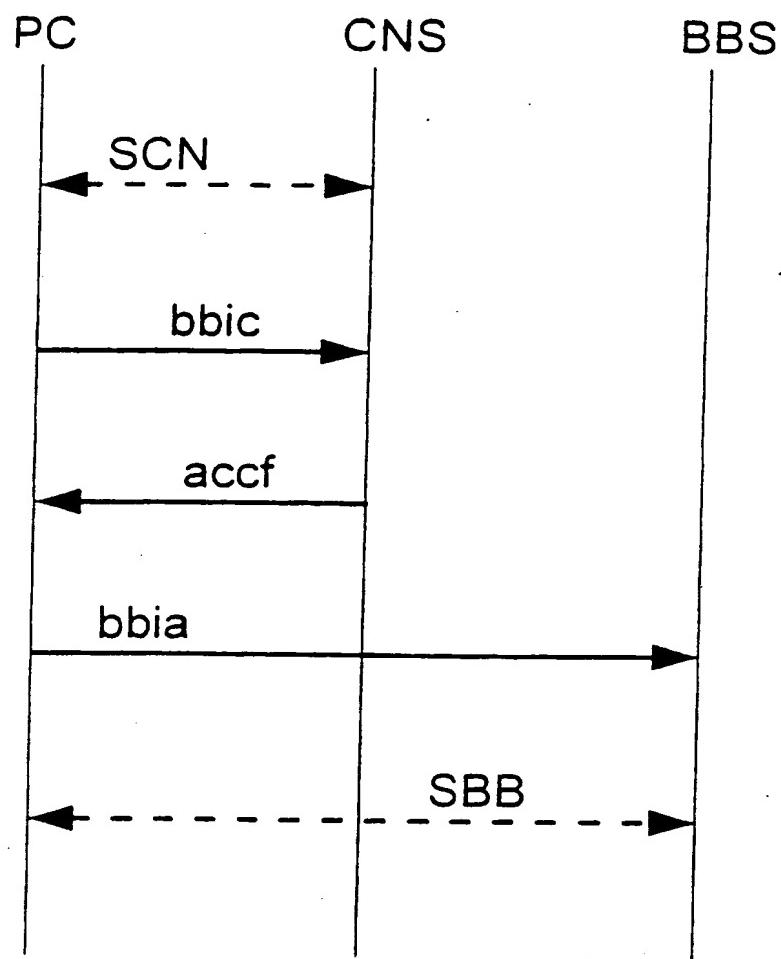


Fig. 3

METHOD FOR THE INTEGRATION OF THE ACCESS TO WIDE-BAND SERVICES INTO EXISTING COMPUTER NETWORK SERVICES

A plurality of services for private and business customers is currently being established on the market which enable the retrieval and the distribution of information by way of computers which can be reached by way of a communication network. Examples are interactive videotex/Datex-J, diverse "Mailbox" systems (for example Compuserve, America Online, eWorld) and the worldwide Internet. Services of this kind will be called computer network services for short in the following.

Independently of this, the development of interactive video services by way of cable and wide-band networks is being advanced. Typical examples of this are "Video-on-Demand" and "Homeshopping", but also multimedia teaching and information offers. Services of this kind will be called wide-band services for short in the following.

The essential difference between the new (frequently interactive) wide-band services and conventional computer network services is that the infrastructure of the video services is designed with respect to the transmission of continuous data streams of a high bit rate (for example video reproduction in real time). On the other hand, computer network services, for technical reasons (with Internet for example the alignment on the TCP/IP protocol) are not in a position to guarantee a definite answer time and therefore in practice exclude real-time transmissions where the reproduction takes place at the same speed as produced by the source.

Currently the two types of services (conventional computer network services and wide-band services) are technically completely separate. Typically, as terminal units for computer network services personal

computers (PCs) or workstations are used which are connected by way of telephone modems or ISDN to so-called "servers" for the conventional services. On the other hand, the terminal units for wide-band services
5 are typically so-called "set-top-boxes" which are attached to a television apparatus and are connected by way of the most varied technological methods in wide-band manner to special servers (video or multimedia servers), for example by way of specially used channels
10 of a wide-band cable distribution network.

For the user this separation predominantly has disadvantages which are to be seen on the one hand in the increased costs through different device types for the use of both services and on the other hand in
15 separate user interfaces for both device types.

The present invention, therefore, seeks to provide a method with which the integration of the access to information in conventional computer network services on the one hand and wide-band services on the other
20 hand is achieved.

The method in accordance with the invention enables the integration of the access to interactive wide-band services into conventional on-line services (for example Internet services). The aim in this
25 respect is to modify the conventional computer network applications (for example Internet services) and the wide-band services as little as possible.

According to the invention, there is provided a method of operation of a data communication terminal unit connected to a computer network and to a wide-band network to retrieve wide-band information, comprising the steps of:

obtaining by means of the computer network access data including information necessary for the data communication terminal to access the information;
35 using the access data to retrieve the wide-band

information over the wide-band network.

In this regard, the term 'wide-band information' is intended to mean at least information stored on a server in a wide-band network, or information transmitted over a wide-band network, for example.

The solution in accordance with the invention provides in this respect that a terminal unit is used which is connected both to the conventional computer network and to the wide-band network. This terminal may be, for example, a PC or a workstation. This is easily possible if the wide-band services are realized by way of wide-band ISDN terminals for the end user, because (ATM) interface cards suitable for PCs and workstations are available. The access to the conventional computer networks can be realized in the wide-band ISDN by way of the same terminal as separate (relatively narrow-band) virtual connection. However, the invention is not restricted to wide-band ISDN connections or to PC outlined above, and may be applied to any data terminal connected to both computer and wide-band network services.

The solution in accordance with the invention provides in a preferred embodiment, moreover, that the terminal unit is in a position to reproduce the information supplied by wide-band services (also called content data here), in an adequate manner (for example in a separate window of the user interface). For this purpose, additional applications to the terminal unit are necessary which convert the formats of the multimedia information supplied in the wide-band service into a visible representation. For video information there is already the standardized MPEG format, for more general multimedia information the MHEG format, for example, is relevant. For the MPEG format special hardware support for standard PCs can already be obtained.

Advantageous developments of the invention are evident from the subclaims.

For a better understanding of the present invention, and to show how it may be brought into effect, reference will now be made, by way of example, to the accompanying drawings, in which:

Figure 1 shows the basic configuration of the hardware devices for carrying out the present invention. A data communication terminal unit (for example a PC) communicates by way of a computer network (CN) with a server (CNS), accessible over the network, which server stores access data (accf) for offers of a wide-band service (multimedia service). The same terminal unit can establish by way of a wide-band network (BN) a connection with a server (BNS) of a wide-band service and retrieve (bbia) the content data of a selected (bbic) offer with the aid of the access data (accf).

A variant of this configuration can be seen in Figure 2. Here a single access to the wide-band network is used in order to produce the connections to both types of servers. The conventional server uses a connection (CN) within the wide-band network (BN) while the actual wide-band service is developed by way of one or more additional connections (BBCn). The computer network therefore does not have to be a physically independent network; in this respect it can just as well be a logical network (that is to say a network protocol), which is used, for example, together with the wide-band network protocol on the physical wide-band network (BN).

Figure 3 shows diagrammatically the sequence of communication between the individual hardware devices for carrying out the method in accordance with the invention. The user selects (bbic) with the aid of a data communication terminal unit (PC) by way of a

computer network service (SCN) an offer of a wide-band service. Thereupon the server (CNS) of the computer network transmits access data (accf) of this offer to the terminal unit. With the aid of this access data 5 the user accesses the server (BBS) of the wide-band service and with this develops the desired wide-band service (SBB).

The basic idea of the method described here consists in that within the conventional service (for 10 example in the Internet service World Wide Web (WWW) or also in a mailbox selected by way of ISDN) a data file is made available which contains access information for the wide-band service. In the event of interest in the 15 wide-band information, this data file is transmitted by way of the conventional service to the data communication terminal unit and is evaluated there by a special program.

This program sequence effects the establishment of a connection to a videoserver in the wide-band service, 20 whereby for the relevant videoserver no difference from use by way of a set-top-box can be observed. Figure 2 shows the basic communication sequence.

The access data file, which is transmitted by the conventional server to the data communication terminal 25 unit and which is evaluated there, can be understood as a script with the help of which the data communication terminal unit can simulate the same interaction with the videoserver, which interaction would also be used by a set-top-box to retrieve the same information.

30 The access data file preferably has the following contents:

- A statement about the operator and the type of wide-band service. With the aid of this information the data communication terminal unit examines whether 35 it can reach the relevant videoserver by way of its wide-band terminal and whether its reproduction

capabilities are adequate for this purpose. A prerequisite for this is that, upon connection to the wide-band network, the data communication terminal unit is configured according to the services which are actually available.

- 5 ● Information about protocols to be developed with the videoserver. This statement will frequently describe protocols for several connections. A typical statement is: control connection with DSM-CC by way of
- 10 TCP/IP, video connection in the MPEG-2 program stream format.
- 15 ● The network address of the wide-band server. Independently of the network operator this information can assume various formats. In the long term a wide-band ISDN address is to be expected here.
- 20 ● Parameters for the connections to be set up, such as bit rate, or (with B-ISDN) "high and low layer information", possibly "called party subaddress".
- 25 ● A sequence of commands which are to be sent by the data communication terminal unit to the video server. These commands are used to simulate the selection process usually carried out by the user of a set-top-box. Special short commands possibly exist for the direct addressing of certain information; however, it can also be necessary to pass through the selection hierarchies of a menu system in this case.

The entire dialogue with the videoserver is not simulated by the data communication terminal unit. Certain parts are developed in interaction with the user (such as queries as to authorization and deduction of costs). Moreover, after a certain point the interaction with the wide-band service takes place as from a set-top-box (for example control of a running film by way of pause/forward/backward/stop buttons).

35 Table 1 shows an annotated example for such a data file. The special syntax of the data file is to be

understood as a suggestion. Fundamentally it is conceivable that each operator of a computer network service uses a particular format (with appropriate applications for the data communication terminal unit);
5 however, a standardization of the format would be meaningful.

| | |
|----|---|
| | SERVICE XYZCompany LEVEL 2 --Service Operator, -Type |
| | PROTOCOL(CTRL:DSM-CC.TCP.IP.AAL5) (VIDEO:MPEG2PS.AAL5) |
| | -- Protocol statement |
| 10 | ADDRESS (E.164)123456789 -- Address with statement of the address system |
| | PARAM CTRL BIT RATE=64K -- Bit rate for control connection |
| 15 | COMMANDS |
| | (SETUP CTRL) -- Establishment of the control connection |
| | (SELECT EDUCATION/MUSIC/COMPOSERS/BACH) |
| | -- Selection of certain multimedia information |
| 20 | |

Table 1: Example of an access data file

In the example given, no connection parameters
25 (for example bit rate) were indicated for the video
connection on purpose. Here one proceeds on the basis
that the video connection is established if the
videoserver transmits a certain control command (in the
control connection). In this control command the bit
rate can be specified in more detail. Of course, if
30 the videoserver so demands, both connections can also
be established as soon as contact is made with the
videoserver.

In the indicated example for selecting the
35 multimedia information it is to be observed that here

it does not have to be a matter of the concrete path statement of the relevant data file(s) in the data-file system of the server (as with the so-called Universal Resource Locators in WWW). Instead, symbolic

5 identifiers of the content are to be recommended which are first converted into real data-file locations by the software of the server.

With certain conventional services, in particular the WWW service in the Internet, the transmission and evaluation of the data file can be automated in a neat manner. The WWW is based on the fact that client 10 programs (so-called browsers) retrieve information from servers placed in the Internet in any way, which information is written in the language HTML (Hypertext Markup Language). HTML scripts contain references to 15 any documents in the Internet. The browser programs for WWW are modular in the sense that from the document type (data-file end) they try to determine a local program (so-called viewer) with which the information 20 can be displayed. In this way the access to real-time video information as new document type can be integrated. Documents of the new type contain access 25 data files, as described above (that is to say not the actual video information). On the client side a viewer is added which designs the access data file, as described above. In this way an interactive wide-band service can be integrated seamlessly into existing WWW browsers.

A variant of the described invention which is 30 worth mentioning is that the server for the conventional service and the server for the wide-band service are connected to each other or are even realized on the same machine. This enables the automatic coordination of access data files with the 35 data stock of the server.

The invention makes it possible to integrate an

access to wide-band services such as video-on-demand into computer network services already introduced today (for example the WWW service in the Internet) in a flexible and modular manner. In this way operators of computer network services are enabled with relatively little expenditure to prepare by way of cooperation with local operators of wide-band services high-quality multimedia information for their customers. This new technical possibility can also be of interest to a wide circle of commercial users, for example for the central preparation of multimedia training documents for use on standard PCs at spread-out locations, and therefore increases the potential circle of interested people for the new interactive video services.

For the users and suppliers of conventional computer network services the access to wide-band information enables a completely new class of offers, that is to say real "Live" services. Real-time video or audio information can be supplied to the computer network (for example WWW) with the aid of any external device in connection with on-line compression hardware. On the basis of this technology, servers can enable, for example, the on-line view through a video camera. Uses for this are many and diverse: weather reports, tourism advertising, sports news or even access to television programmes.

CLAIMS

1. A method of operation of a data communication terminal unit connected to a computer network and to a wide-band network to retrieve wide-band information,

5 comprising the steps of:

obtaining by means of the computer network access data including information necessary for the data communication terminal to access the information;

10 using the access data to retrieve the wide-band information over the wide-band network.

2. A method according to claim 1, where after the transmission to the terminal unit the wide-band information data is reproduced by the terminal unit.

15 3. A method according to claims 1 or 2, where a single access to the wide-band network is used in order to produce the connection to a server with the access data and the connection to a server with the wide-band information.

20 4. A method according to one of claims 1 to 3, where the access data comprises statements about the operator and the type of wide-band service.

25 5. A method according to one of claims 1 to 4, where the access data comprises information about the protocols to be developed with the server of the wide-band network.

6. Method according to one of claims 1 to 5, where the access data contain a sequence of commands which enables an emulation of a set-top-box by way of the terminal unit.

30 7. A method substantially as herein described with reference to the accompanying drawings.

8. Method for the integration of access to wide-band services into existing computer network services, in particular in connection with multimedia services, 35 having the following steps:

a) with the aid of a data communication terminal

unit connected to a computer network and to a wide-band network a user selects by way of the computer network at least one offer of a wide-band service, the content data of which is stored on a server of the wide-band

5 network;

b) the result of this selection procedure is that access data is transmitted by way of the computer network to the data communication terminal unit of the user; the access data identifies a selected offer clearly and includes the information required to retrieve the content data of this offer;

10 c) a connection is established with the server of the wide-band network and the content data of the selected offer is transmitted by way of the wide-band network to the terminal unit of the user.

15



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Office
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Application No: GB 9623735.9
Claims searched: 1-8

Examiner: Mr B J Spear
Date of search: 11 February 1997

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): H4K (KOD4, KOT); H4P (PPA); H4R (RCC, RCSS)

Int Cl (Ed.6): H04L 12/46, 12/64, 12/66

Other: Online: WPI

Documents considered to be relevant:

| Category | Identity of document and relevant passage | Relevant to claims |
|----------|---|--------------------|
| X | GB2166025A (Int. Standard Electric),eg Fig. 1 and p 2 ll 5-127. | 1 at least |
| XE | WO96/38962A1 (Siemens) Whole document,especially Figs. 4,5, and 7, and Derwent WPI abstract | 1,2,8 at least |
| X | DE3207022A (Siemens) Whole document, and Derwent WPI abstract. | 1,2,8 at least |

| | | |
|---|---|--|
| X | Document indicating lack of novelty or inventive step | A Document indicating technological background and/or state of the art. |
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